FIG. 1

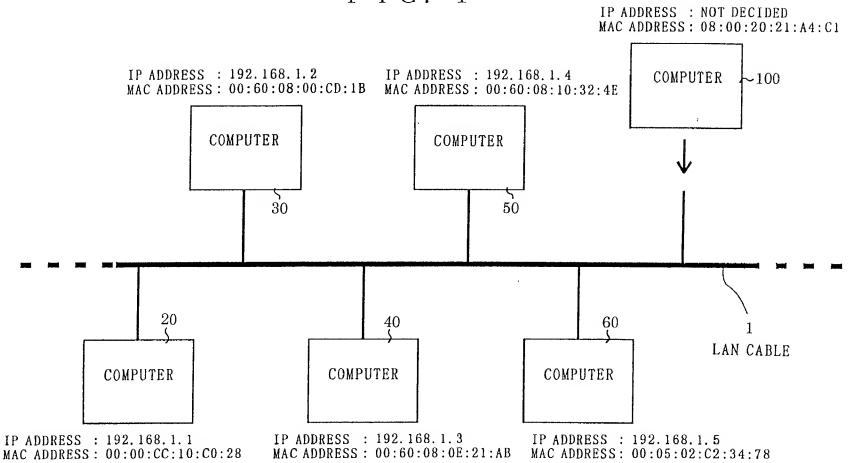

FIG. 2

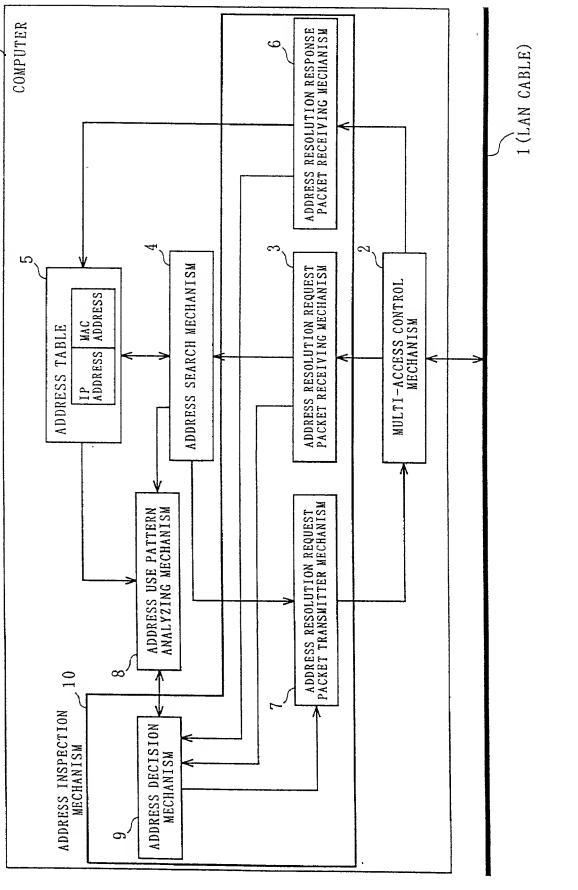
100
COMPUTER
ADDRESS TABLE
IP ADDRESS
MAC ADDRESS
5
ADDRESS SEARCH MECHANISM
4
ADDRESS RESOLUTION RESPONSE PACKET RECEIVING MECHANISM
6
ADDRESS RESOLUTION REQUEST PACKET RECEIVING MECHANISM
3
MULTI-ACCESS CONTROL MECHANISM
2
1 (LAN CABLE)
ADDRESS USE PATTERN ANALYZING MECHANISM
8
ADDRESS RESOLUTION REQUEST PACKET TRANSMITTER MECHANISM
7
ADDRESS INSPECTION MECHANISM
10
ADDRESS DECISION MECHANISM
9

FIG. 3

ADDRESS TABLE

IP ADDRESS	MAC ADDRESS
192.168.1.1	00:00:0C:10:00:28
192.168.1.2	00:60:08:00:C0:1B
.	.
.	.
.	.
.	.
.	.
192.168.1.253	00:05:C2:02:18:71
192.168.1.254	00:50:32:4B:2C:01

FIG. 4

ADDRESS RESOLUTION REQUEST PACKET

IP ADDRESS	192.168.1.○○○
MAC ADDRESS	△△:△△:△△:△△:△△:△△
ACQUISITION REQUESTED IP ADDRESS	192.168.1.●●●

FIG. 5

ADDRESS RESOLUTION RESPONSE PACKET

(WHEN ACQUISITION REQUESTED IP ADDRESS OF RECEIVED ADDRESS RESOLUTION REQUEST PACKET IS COINCIDENT WITH ITS OWN IP ADDRESS, ADDRESS RESOLUTION RESPONSE PACKET IS SENT TO TRANSMITTER.)

ITS OWN IP ADDRESS	192.168.1.○○○
ITS OWN MAC ADDRESS	△△:△△:△△:△△:△△:△△

FIG. 6

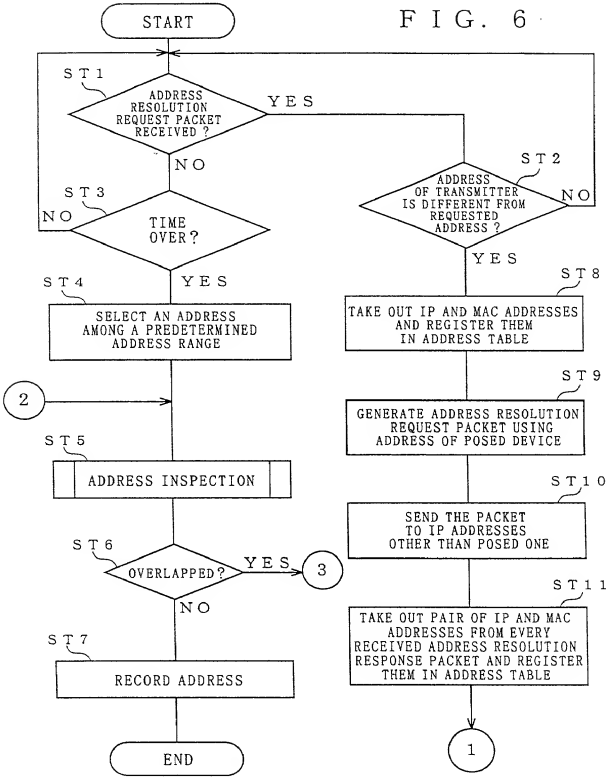

FIG. 7

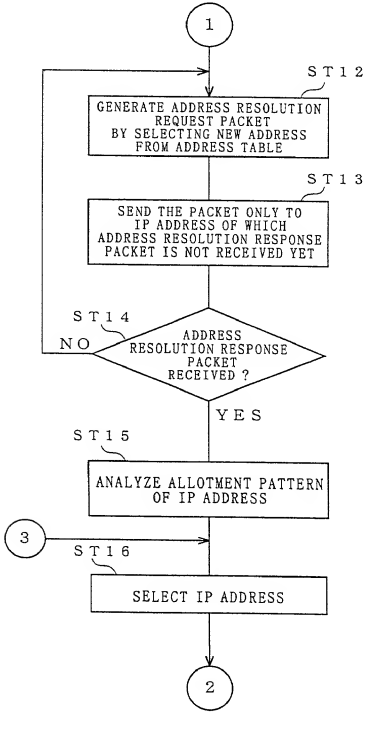
1
ST12
GENERATE ADDRESS RESOLUTION REQUEST PACKET BY SELECTING NEW ADDRESS FROM ADDRESS TABLE
ST13
SEND THE PACKET ONLY TO IP ADDRESS OF WHICH ADDRESS RESOLUTION RESPONSE PACKET IS NOT RECEIVED YET
ST14
NO
ADDRESS RESOLUTION RESPONSE PACKET RECEIVED ?
YES
ST15
ANALYZE ALLOTMENT PATTERN OF IP ADDRESS
3
ST16
SELECT IP ADDRESS
2

FIG. 8

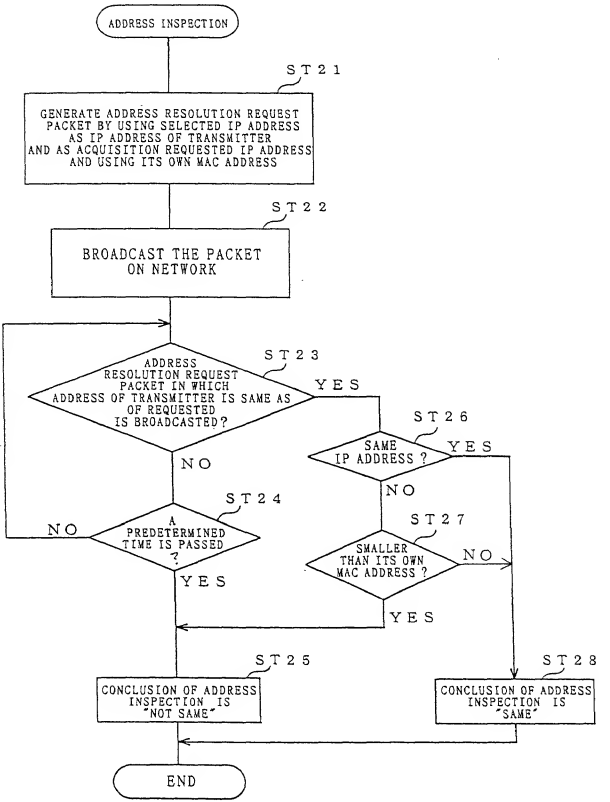
ADDRESS INSPECTION
ST21
GENERATE ADDRESS RESOLUTION REQUEST PACKET BY USING SELECTED IP ADDRESS AS IP ADDRESS OF TRANSMITTER AND AS ACQUISITION REQUESTED IP ADDRESS AND USING ITS OWN MAC ADDRESS
ST22
BROADCAST THE PACKET ON NETWORK
ST23
ADDRESS RESOLUTION REQUEST PACKET IN WHICH ADDRESS OF TRANSMITTER IS SAME AS OF REQUESTED IS BROADCASTED?
YES
NO
ST26
SAME IP ADDRESS ?
YES
NO
ST24
A PREDETERMINED TIME IS PASSED ?
NO
YES
ST27
SMALLER THAN ITS OWN MAC ADDRESS ?
NO
YES
ST25
CONCLUSION OF ADDRESS INSPECTION IS "NOT SAME"
ST28
CONCLUSION OF ADDRESS INSPECTION IS "SAME"
END

FIG. 9

	DECIMAL NUMBER	BINARY NUMBER
IP ADDRESS	192. 168. 0. 1	11000000. 10101000. 00000000. 00000001
NET MASK	255. 255. 255. 0	11111111. 11111111. 11111111. 00000000

FIG. 10

CLASS	DEFAULT MASK (DECIMAL NUMBER)	CORRESPONDING IP ADDRESS RANGE	HOSTS PER NETWORK
A	255. 0. 0. 0	1. 0. 0. 0 ~ 126. 0. 0. 0	16000000
B	255. 255. 0. 0	128. 1. 0. 0 ~ 191. 254. 0. 0	65534
C	255. 255. 255. 0	192. 0. 1. 0 ~ 223. 255. 254. 0	254

FIG. 11

COLLECTED IP ADDRESS (EXAMPLES)

DECIMAL NUMBER	BINARY NUMBER
192. 168. 0. 1	11000000. 10101000. 00000000. 00000001
192. 168. 0. 4	11000000. 10101000. 00000000. 00000100
192. 168. 0. 6	11000000. 10101000. 00000000. 00000110
192. 168. 0. 10	11000000. 10101000. 00000000. 00001010

FIG. 12

(1) Sectioned at 1-bit from the right

NUMBERS TO BE COMPARED 1(BIT)
11000000. 10101000. 00000000. 0000000
11000000. 10101000. 00000000. 0000010
11000000. 10101000. 00000000. 0000011
11000000. 10101000. 00000000. 0000101

→ IP NETWORK ADDRESS AND SUB-NET MASK CAN'T BE DECIDED.

(2) Sectioned at 2-bit from the right

NUMBERS TO BE COMPARED 2(BIT)
11000000. 10101000. 00000000. 000000
11000000. 10101000. 00000000. 000001
11000000. 10101000. 00000000. 000001
11000000. 10101000. 00000000. 000010

→ IP NETWORK ADDRESS AND SUB-NET MASK CAN'T BE DECIDED.

(3) Sectioned at 3-bit from the right

NUMBERS TO BE COMPARED 3(BIT)
11000000. 10101000. 00000000. 00000
11000000. 10101000. 00000000. 00000
11000000. 10101000. 00000000. 00000
11000000. 10101000. 00000000. 00001

→ IP NETWORK ADDRESS AND SUB-NET MASK CAN'T BE DECIDED.

(4) Sectioned at 4-bit from the right

NUMBERS TO BE COMPARED 4(BIT)
11000000. 10101000. 00000000. 0000
11000000. 10101000. 00000000. 0000
11000000. 10101000. 00000000. 0000
11000000. 10101000. 00000000. 0000

	DECIMAL NUMBER	BINARY NUMBER
IP NETWORK ADDRESS	192. 168. 0. 0	11000000. 10101000. 00000000. 00000000
SUB-NET MASK	255. 255. 255. 240	11111111. 11111111. 11111111. 11110000

(5) Sectioned at 5-bit from the right

NUMBERS TO BE COMPARED 5(BIT)
11000000. 10101000. 00000000. 000
11000000. 10101000. 00000000. 000
11000000. 10101000. 00000000. 000
11000000. 10101000. 00000000. 000

	DECIMAL NUMBER	BINARY NUMBER
IP NETWORK ADDRESS	192. 168. 0. 0	11000000. 10101000. 00000000. 00000000
SUB-NET MASK	255. 255. 255. 224	11111111. 11111111. 11111111. 11100000

⋮

(32) Sectioned at 32-bit from the right

NUMBERS TO BE COMPARED

	DECIMAL NUMBER	BINARY NUMBER
IP NETWORK ADDRESS	0. 0. 0. 0	00000000. 00000000. 00000000. 00000000
SUB-NET MASK	0. 0. 0. 0	00000000. 00000000. 00000000. 00000000